

SECURITY DOORS

WHEN TO CONSIDER

NEEDS ASSESSMENT	NO	SCHEMATIC DESIGN	YES
MASTER PLANNING	NO	DESIGN DEVELOPMENT	YES
PROJECT STATEMENT	MAYBE	CONSTRUCTION	
ARCHITECTURAL		DOCUMENTS	DONE
PROGRAMMING	YES	CONSTRUCTION	DONE

NO-Need not consider.
MAYBE-This system may be considered.
YES-This system should be considered.
DONE-This system should have already been considered.

DESCRIPTION

Security doors control entry, as well as acting as fire, smoke and acoustical partitions. Security doors in this discussion consist of a frame, door blank, locking system, hardware, door glazing and accessories.

RELATIONSHIPS TO OTHER SYSTEMS

The security door is an integral part of the entire security system. The selection of security doors should be done simultaneously with identifying video, audio and direct or indirect surveillance; emergency evacuation; and flow of operations. For example, if you have a four-foot wide food cart, make sure you don't have to pass through a three-foot-wide door.

The security door frames also may be an integral part of the interior and exterior partitions. Some combinations of partitions and frames may not require the frame prior to installing the wall; check with your architect. However, generally the frame should be available when the wall is being installed. Delivery of frames and doors is almost always a problem. Deliveries of the hollow metal can take 12 to 24 weeks from the approval of shop drawings.

ALTERNATIVES

Swinging Doors Versus Sliding Doors

Swinging doors are hinged and open in or out. Sliding doors are on a track with a housing above. The cost of swinging doors is approximately the same as sliding doors, depending on the options selected. Where the costs differ is in installation. A swinging door takes approximately six man hours to install while a sliding door requires 12 hours to install. Swinging doors also require less maintenance than the sliding door because they have fewer parts.

Swinging doors are used in minimum and medium security cells, control rooms, secure closets, mechanical and electrical rooms, low traffic sallyports, emergency exits, and exterior doors. They provide a much better seal for weather protection than sliding doors. Swinging doors

arranged along a corridor should be off-set from each other.

Sliding doors are used in medium and maximum security cells, high traffic sallyports and holding cells. When selecting a sliding door, remember that the width of the door plus an additional six inches is required for operation. Therefore, a three-foot-wide door will require a six-foot-six-inch corridor opening.

When placing a door, pay attention to tolerances and dimensions such as the height of the housing above the door and the distance from adjoining doors.

Locking Systems

Manual Propelled Manual Lock. Door movement is controlled manually. The dead bolt is opened by a key and locked by a key. This may be keyed on one or both sides. It is generally used for mechanical and electrical rooms and is the least expensive system.

Manual Propelled Manual Slam Lock. Door movement is controlled manually. The lock is opened by a key and automatically locks when closed. This may be keyed on one or both sides. It is generally used with a door closer to provide automatic locking. This price is comparable to the manual propelled manual lock.

Manual Propelled Electric Lock. Door movement is controlled manually except for being pushed ajar when unlocked. Locks are controlled individually or as a group from a remote control panel. The system is generally used for sallyports, cells and control rooms. The cost is approximately 60 percent greater than a manual lock (not including wiring and controls).

Electrical Propelled Electric Lock. The door movement and lock are controlled electrically from a remote control panel. This system is used on sliding doors only. It is generally used for holding cells, maximum cells and sallyports. The cost is approximately 80 percent greater than the manually propelled, electric locking system.

Manual Tool Override (Sliding Door Only). The door lock may be overridden by a wrench type device. It is located in the housing of the sliding door and is accessible in emergency situations. This is standard equipment with most manufacturers.

Mechanical Group Release. Doors may be unlocked mechanically in groups or individually from a control cabinet. It is generally used for emergency situations when

power is out. Three position levers provide open/closed/maintenance (access to locking mechanism) positions. The cost is approximately \$200 per door (the length of run and location of cabinet affect price).

Electric Keyswitch. The door can be electrically unlocked by a (mogul type) key mounted on the door frame outside of the cell. These switches may be enabled/disabled from the control panel. The cost for a sliding system is approximately an additional \$4,50 per lock, \$150 per lock for a swinging door. This option generally is too expensive for cells. It is used most often in sallyports.

Inmate Pushbutton. The door can be unlocked inside the cell by a pushbutton mounted on the door frame. These switches may be enabled/disabled from the control panel. This option may be purchased with the electric keyswitch. It is generally used in minimum cells.

Door Blanks

The selection of a door type usually is determined by the type of inmate being incarcerated. In addition to the type of door, the size of the door also must be selected. Adjusting the door height or width two inches does not significantly affect the cost of the door system. Changing the door size by more than four inches increases the price significantly. The thickness of a security door normally is 2 inches. For minimum security inmates, a 1-3/4-inch door may be used.

Hollow Metal. The hollow metal door is the most commonly used security door. It is recommended for minimum and medium security inmates. It is constructed with two 14-gauge, cold-rolled steel face sheets, with 16-gauge vertical reinforcing members spaced every four to six inches. The perimeter of the door is continuously reinforced with 12-gauge steel channel welded to the face. This door, without openings, when labeled by an approved testing agency maybe classified with a three-hour fire rating; with openings when labeled by an approved testing agency maybe classified with a 1-1/2 hour rating.

Hollow Steel. The hollow steel door is similar to the hollow metal door except the face sheets are 12 gauge and vertical reinforcing occurs more frequently. This door is recommended for maximum security inmates. The cost is approximately 10 to 15 percent higher than the hollow metal.

Steel Plate. The 3/16-inch steel plate door was a common security door but has since been replaced by the hollow metal door because the steel plate is heavier and less durable. Its current application is for chase doors. The

cost is less expensive; however, additional and heavier hinges may be required which offset the savings.

Solid Wood. A solid wood door may be adequate for minimum or medium security inmates only. Wood doors are one of the least expensive options available.

Grate/Jail Steel. This door comes in many shapes and materials. These include several different types of meshes, tubular steel bars and solid steel bars. These doors provide good surveillance, voice communications and air circulation while still maintaining security. What makes this type of door desirable in some instances also makes it undesirable in other instances. It is most expensive option.

Door Frame And Hardware Comparison

The door frame and hardware are generally determined given the door type, locking system, and whether the door swings or slides. Frames may be manufactured locally when faced with a time constraint, but are generally purchased with the entire door system allowing for single point responsibility.

Hollow Metal Frame. The hollow metal frame is a 12-gauge, cold rolled steel frame, continuously welded at the corners with integral stops. Each frame receives a minimum of three anchors per jamb. During installation the frames are fully grouted. The hollow metal frame is generally used with hollow metal doors. This frame also is used when the lock is housed in the frame instead of the door.

Steel Channel Frame. The steel channel frame is a 12-gauge, cold rolled steel anchored similarly to the hollow metal. The steel channel frame is used for heavy doors such as steel plate and jail steel. The steel channel frame also may be used for sliding doors where the lock is housed in the door. The steel channel frame is considered more secure than the hollow metal.

Institutional Hinge (Swinging Doors Only). The institutional hinge is made of cast brass with stainless steel non-removable pins. This hinge is 4-1/2 inches square with two sets of hardened ball bearings. This type of hinge is recommended for hollow metal and other light doors. Three hinges are required for each door.

Heavy Duty Hinge (Swinging Doors Only). Hinges are drop forged of mild steel and have heavier bearing thrust for heavier doors. This hinge may be used on lighter doors

requiring two hinges or heavier doors requiring three hinges. The 5-inch hinge is welded on one side.

Recessed Door Handle. This handle is most often used on the inmate side. It is cast bronze and fastened-with safety screws.

Door Knob or Door Pull (Swinging Doors Only). The knob is a non-operable put(used on both sides of the door, it is solid brass fastened with safety screws.

Door Closers. Recessed door closers are generally used. This type of closer is recessed into the door frame head so that no hardware is exposed. Exposed closers constitute a real hazard because the closers can be torn off and made into weapons. Surface-mounted closers generally are used only in minimum security areas.

Vision/Observation Panels. This is used to allow light and visibility through the door. Sizes and shapes may vary depending on user preferences. The cost of the opening is approximately the square foot price of the glazing being installed. For example, a 5 x 12-inch observation panel that costs \$170-260. The size of these panels may be dictated by fire code.

Speaking Device. Speaking devices vary in size depending on the manufacturer but are approximately six inches by eight inches. They are inserted below the observation panel and covered with a steel baffle to prevent the passing of contraband. The approximate cost is \$130.

Shutter. The shutter is a hinged steel plate applied over the observation panel or over both the observation panel and speaking device, its approximate cost is \$60-\$330.

Food Pass. The food pass is a 3-1/4 inches by 5 inches clear opening with a heavy duty snap lock, it allows you to present food to maximum security inmates. The approximate cost is \$200-360.

Door Frames Matrix

		ALTERNATIVES							
		18 GAUGE COMMERCIAL	16 GAUGE COMMERCIAL	14 GAUGE SECURITY	12 GAUGE SECURITY	STEEL PLATE, ANGLES, BARS			
CRITERIA	COST LOW MEDIUM HIGH	●	●	●	●	○			
		●	●	●	●	○			
		●	●	●	●	○			
	SECURITY LOW/NONE MEDIUM HIGH	●	●	●	●	○			
		●	●	●	●	○			
		●	●	●	●	○			
	DURABILITY LOW MEDIUM HIGH	●	●	●	●	○			
		●	●	●	●	○			
		●	●	●	●	○			
	SCHEDULE SLOW MEDIUM FAST	●	●	●	●	○			
		●	●	●	●	○			
		●	●	●	●	○			

NOTE: Doors & Frames are typically of same gauge or the door may be one gauge less. Grouting of frames is optional and may or may not add to security integrity of frame but adds cost. A security door w/security hardware will be 3 times as expensive or more than a commercial set.